

WEEKLY RESPIRATORY DISEASE SURVEILLANCE REPORT

Influenza Season 2023-2024

Weekly Respiratory Disease Surveillance Report

December 10 - December 16, 2023 (MMWR Week 50)

Report created: 21st December 2023

Contents

Introduction	3
At a Glance	3
1. Syndromic Surveillance	3
1.1 Diagnosed Acute Respiratory Illness	4
1.2 Influenza-Like Illness Excluding Diagnosed COVID-19	4
1.3 Diagnosed COVID-19	5
1.4 Respiratory Syncytial Virus (RSV)	6
2. Outbreak Surveillance	6
2.1 Overall Respiratory Outbreaks by Week	6
2.2 Respiratory Outbreaks by Region	7
2.3 Respiratory Outbreaks by Etiologic Agent	8
3. Laboratory Surveillance	10
3.1 Lab Confirmed Influenza by Week	11
3.2 Lab Confirmed Influenza by Region	13
3.3 Demographic Distribution of Influenza Positive Labs	14
3.4 Seasonal Trend of Lab Confirmed Influenza in Virginia	14
Methodology	15
I. Syndromic Surveillance Methodology	15
II. Outbreak Surveillance Methodology	15
III. Laboratory Surveillance Methodology	15
Case Definitions	16
I. Syndromic Surveillance Definitions	16
II. Outbreak Surveillance Definitions	16
III. Laboratory Surveillance Definitions	16

Introduction

Respiratory disease surveillance involves monitoring a variety of data sources, including syndromic surveillance, outbreak surveillance, and laboratory surveillance. These data should be evaluated together to create a more complete picture of respiratory disease activity in Virginia.

Syndromic surveillance uses visit data from emergency departments (ED) and urgent care centers to help identify and monitor events of public health concern in near real time. However, many respiratory illnesses cause similar symptoms; for example, measures for flu activity may also reflect activity from other respiratory viruses.

Outbreak surveillance can provide an indicator for how much respiratory disease is spreading within a community and within specific settings. Any person in charge of a residential or day program, service, or facility licensed or operated by any agency of the Commonwealth, or a school, childcare center, or summer camp is required to report to the local health department the presence or suspected presence of persons who have common symptoms suggesting an outbreak situation.

Laboratory surveillance for influenza provides insight into the burden of flu and which viruses are circulating at a given time. Annual vaccinations are updated regularly based on laboratory surveillance findings. However, only confirmatory laboratory results are reported to VDH and can provide information on the type or strain of flu, meaning the data for rapid tests is not included in public health surveillance.

At a Glance

During the week of December 10 - December 16, 2023 (MMWR Week 50), 5.5% of emergency department (ED) and urgent care visits were due to influenza-like illness (ILI). For the 2023-24 season, 0 pediatric deaths associated with influenza has been reported in Virginia. More data and details on flu surveillance can be found [here](#).

- ED and urgent care visits for **diagnosed acute respiratory illness increased 8%**, **ILI excluding diagnosed COVID-19 increased 24%**, visits for **diagnosed COVID-19 increased 15%**, and **diagnosed Respiratory Syncytial Virus (RSV) decreased 16%**. All of them **remained significantly elevated** in Virginia's syndromic surveillance system compared to a baseline of previous weeks.
- **70 respiratory outbreaks** (35 confirmed, 33 suspected, 2 unknown) were reported this week; a **21% increase** from the previous week. The etiologic agent for most of the outbreaks (50; 72%) was SARS-CoV-2.
- **1,565 confirmatory influenza labs** were received this week, a **47% increase** from the previous week.

1. Syndromic Surveillance

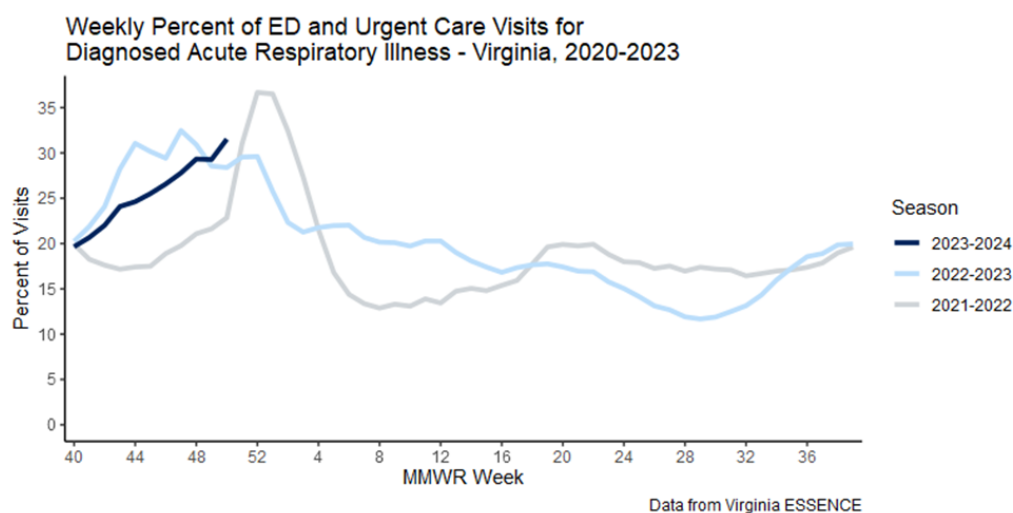
VDH receives data from participating emergency departments (EDs) and urgent care centers through its syndromic surveillance program. The data include visit date and location, patient demographics (e.g., age, race), chief complaint (why the patient is seeking care), and diagnosis.

VDH uses chief complaint and discharge diagnosis to identify visits that meet certain criteria using [syndromic surveillance case definitions](#). This allows public health to monitor disease trends in real time. More information about syndromic surveillance, including data limitations, can be found on the [syndromic surveillance website](#).

1.1 Diagnosed Acute Respiratory Illness

During the week of December 10 - December 16, 2023, ED and urgent care visits for diagnosed acute respiratory illness in Virginia:

- **Increased 8%** compared to the previous week from 29.3% to 31.5% of visits.
- **Remained significantly elevated** in Virginia's syndromic surveillance system compared to a baseline of previous weeks.



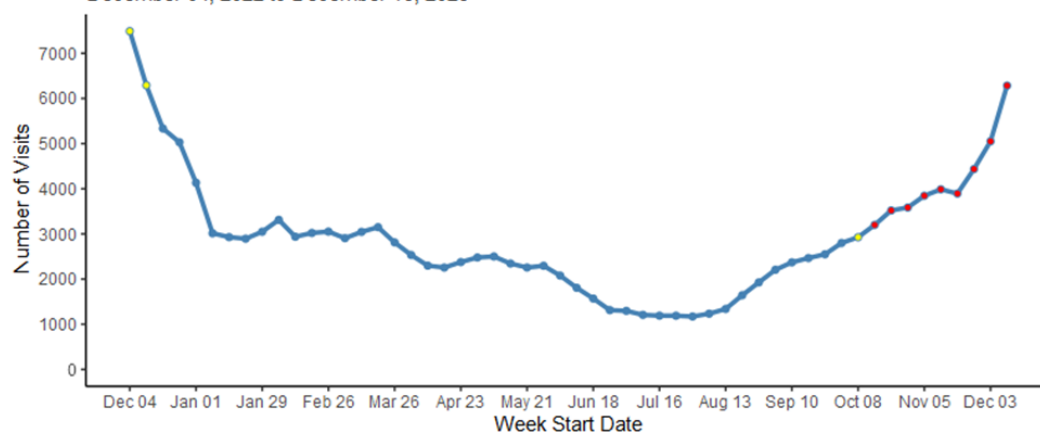
1.2 Influenza-Like Illness Excluding Diagnosed COVID-19

During the week of December 10 - December 16, 2023, ED and urgent care visits for influenza-like illness (excluding visits with diagnosed COVID-19) in Virginia:

- **Increased 24%** compared to the previous week from 5,051 to 6,284 visits.
- **Remained significantly elevated** in Virginia's syndromic surveillance system compared to a baseline of previous weeks.

Weekly ED and Urgent Care Visits for Influenza-Like Illness, Excluding Diagnosed COVID-19 - Virginia

December 04, 2022 to December 16, 2023



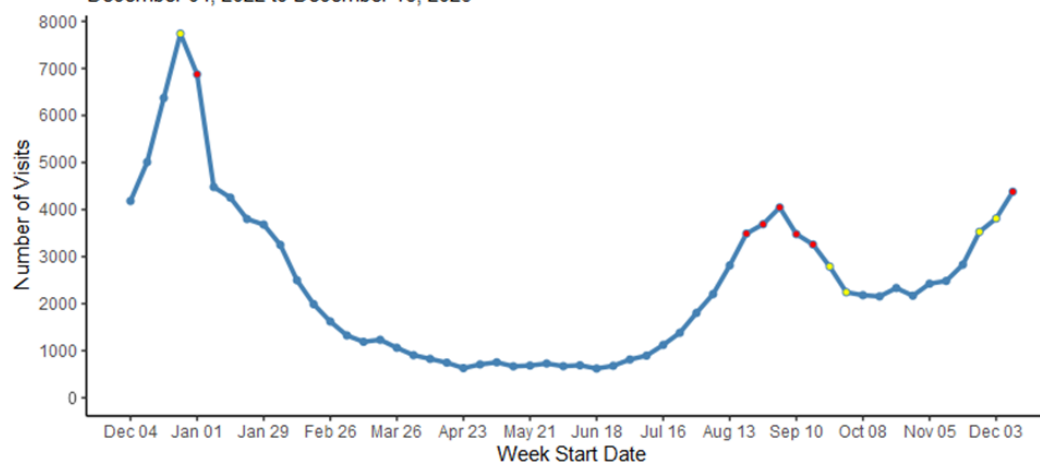
1.3 Diagnosed COVID-19

During the week of December 10 - December 16, 2023, ED and urgent care visits for diagnosed COVID-19 in Virginia:

- **Increased 15%** compared to the previous week from 3,810 to 4,379 visits.
- **Remained significantly elevated** in Virginia's syndromic surveillance system compared to a baseline of previous weeks.

Weekly ED and Urgent Care Visits for Diagnosed COVID-19 - Virginia

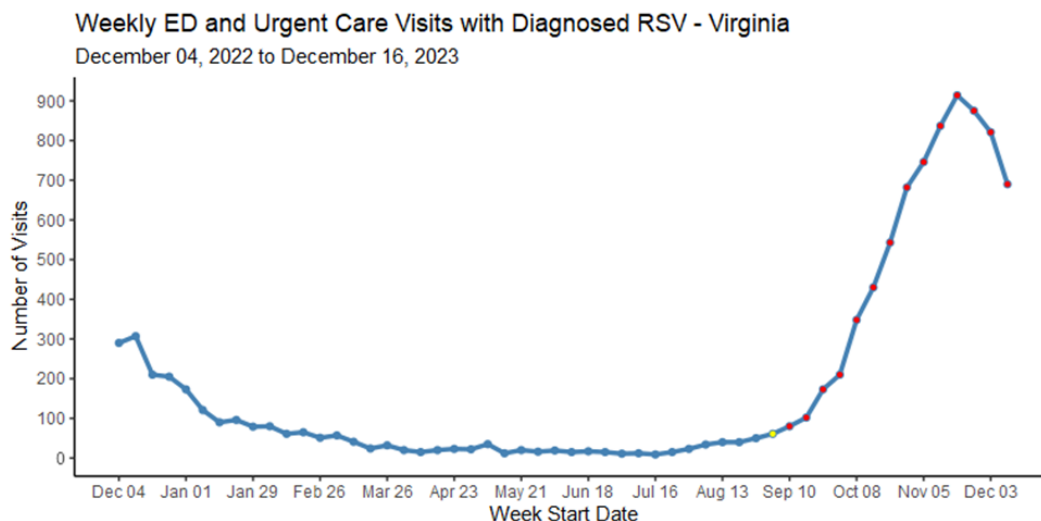
December 04, 2022 to December 16, 2023



1.4 Diagnosed Respiratory Syncytial Virus (RSV)

During the week of December 10 - December 16, 2023, ED and urgent care visits with diagnosed Respiratory Syncytial Virus (RSV) in Virginia:

- **Decreased 16%** compared to the previous week from 821 to 690 visits.
- **Remained significantly elevated** in Virginia's syndromic surveillance system compared to a baseline of previous weeks.

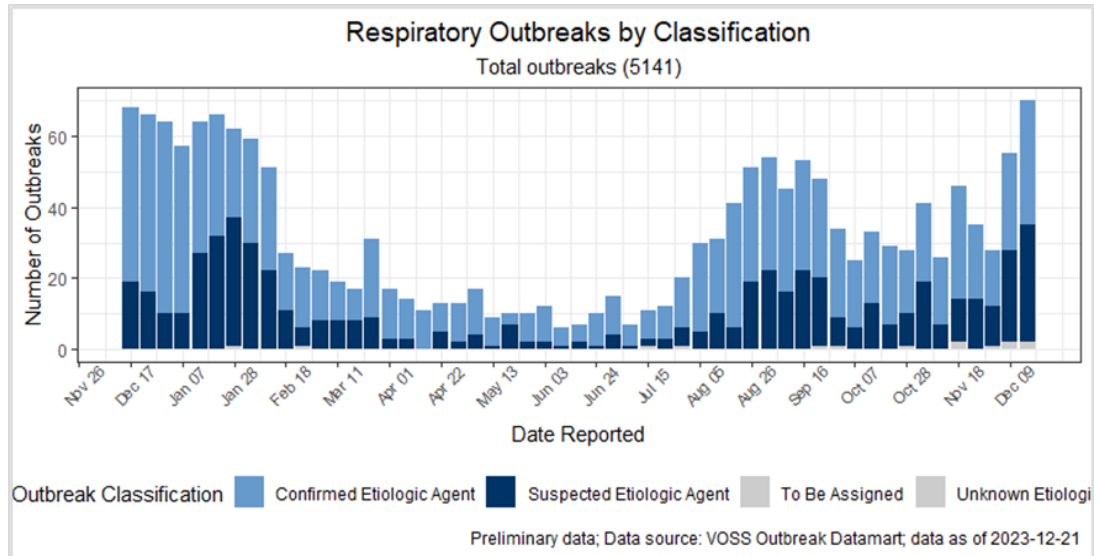


2. Outbreak Surveillance

VDH requires certain facilities or programs to report the presence or suspected presence of an outbreak to the local health department. Reported outbreaks can be a good indicator of how much respiratory disease is spreading within a community and within specific settings. Investigators try to collect laboratory evidence to identify the etiologic agent (disease) causing the outbreak. The lab evidence is used to classify the outbreak as either a 'Suspected' or 'Confirmed' outbreak using [outbreak surveillance definitions](#). If no lab evidence is collected, the etiologic agent will be marked as unknown and the outbreak will be classified as 'Suspected.'

2.1 Overall Respiratory Outbreaks by Week

During the week of December 10 - December 16, 2023, there were 35 confirmed, 33 suspected and 2 outbreak with an unknown etiologic agent reported to VDH; a 21% increase from the previous week.



2.2 Respiratory Outbreaks by Region

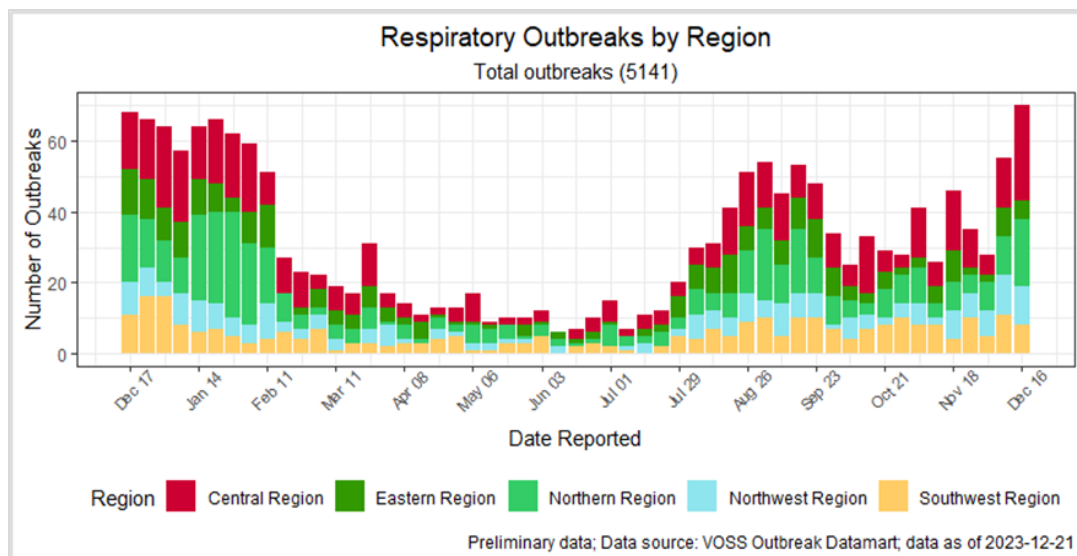


Table 1: Number of Outbreaks by Region and Etiologic Agent During the Week December 10 - December 16, 2023.

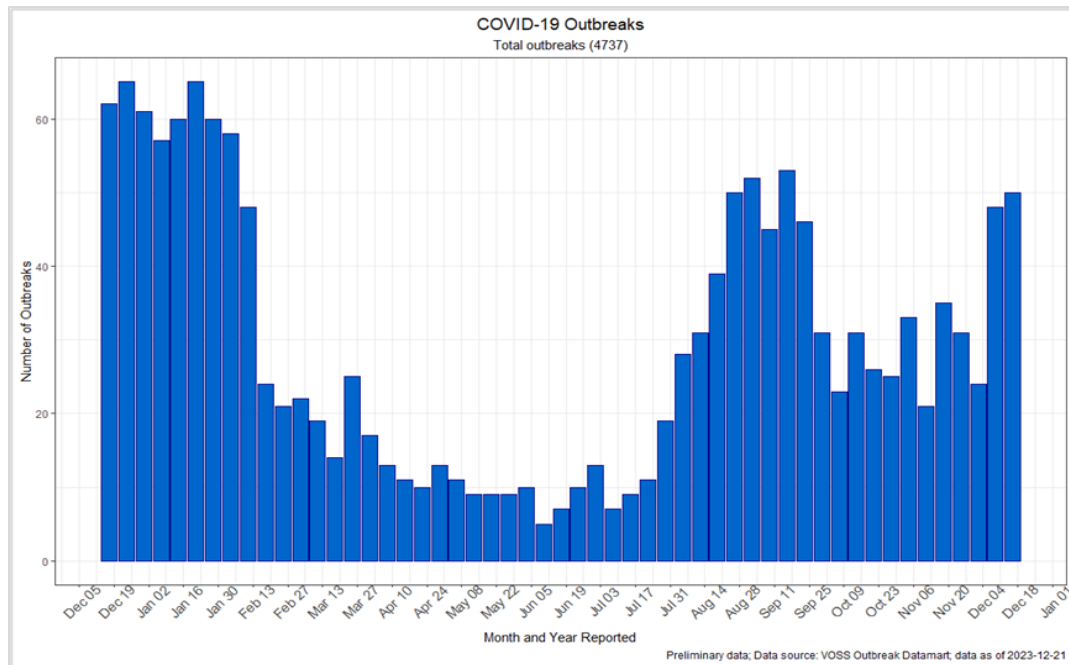
Region	Etiologic Agent	Number
Central	Influenza	5
	SARS-CoV-2	21
	Unknown	1
Eastern	Multiple organisms	1
	SARS-CoV-2	4
Northern	Influenza	3
	SARS-CoV-2	13
	Streptococcus	2
	Unknown	1
	Respiratory Syncytial Virus	4
Northwest	SARS-CoV-2	7
Southwest	Influenza	1
	Respiratory Syncytial Virus	2
	SARS-CoV-2	5

2.3 Respiratory Outbreaks by Etiologic Agent

During the week of December 10 - December 16, 2023, there were a total of **70 outbreaks**:

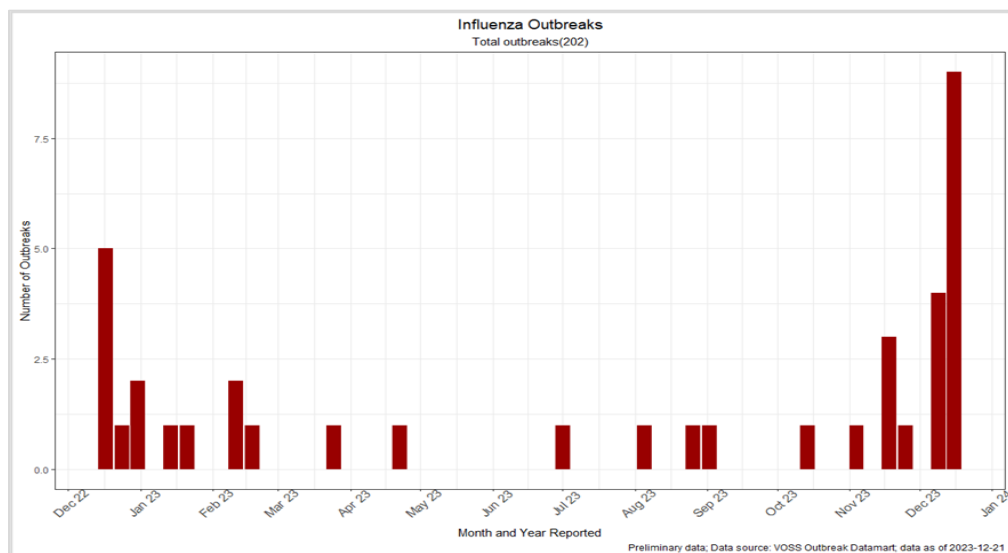
- Influenza: 9 outbreaks
- SARS-CoV-2: 50 outbreaks
- Unknown: 2 outbreaks
- Streptococcus: 2 outbreaks
- Respiratory Syncytial Virus (RSV): 6 outbreaks
- Multiple organisms: 1 outbreak

Weekly COVID-19 Outbreaks, December 2022 – December 2023

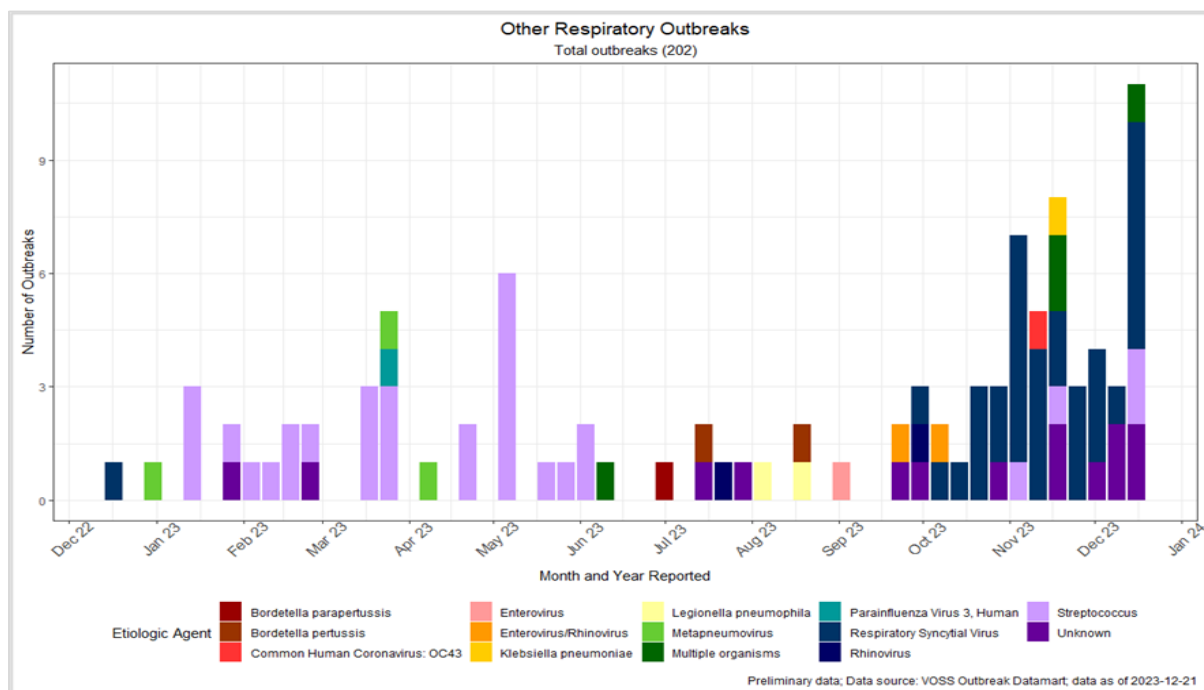


Weekly Influenza Outbreaks, December 2022 – December 2023

The graph below displays both confirmed and suspected influenza outbreaks from December 2022 through December 2023. For the 2023-24 season, 19 influenza outbreaks have been reported.



Weekly Respiratory Outbreaks (Excluding COVID-19 & Flu), December 2022 – December 2023



3. Laboratory Surveillance

Laboratory surveillance provides insight into the burden of flu and which viruses are circulating at a given time.

VDH receives reports of positive confirmatory influenza lab results. The confirmatory tests that are available (PCR, viral culture, and DFA [direct fluorescent antigen]) for the flu are not commonly used. For people who seek care for flu, most are diagnosed with a rapid influenza diagnostic test, or by their symptoms alone. These data are not reported to VDH. Therefore, influenza positive labs reported to public health represent only a small proportion of all people testing positive for influenza.

One of the major benefits to the confirmatory lab results is that they can provide more detailed information about what strain and subtype of flu viruses are circulating. Knowing whether we're experiencing a flu season with a certain type of flu can be important for identifying what communities are at highest risk for complications and negative outcomes. This information also helps us to evaluate the effectiveness of the vaccine each year.

3.1 Lab Confirmed Influenza by Week

During the week of December 10 - December 16, 2023, VDH received a total of 1,565 influenza positive lab results that were able to be subtyped, a 47% increase from the previous week. Of those, most of the labs received (1420; 91%) were positive for Flu A. VDH received 145 Flu B positive labs this week.

Influenza Positive Labs with Subtypes by Week

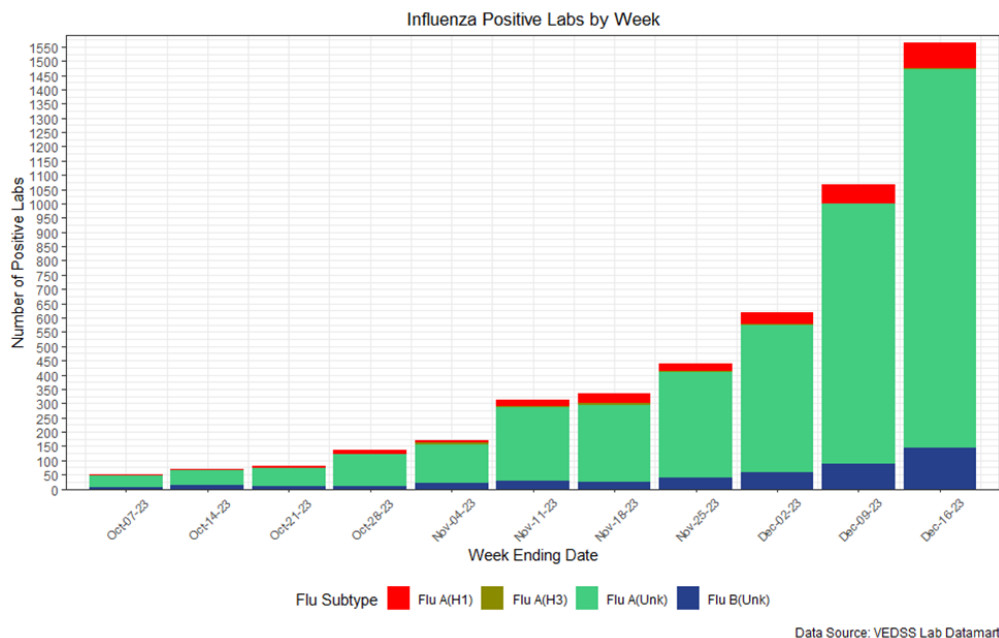


Table 2: Number of Influenza Positive Lab Reports by Flu Subtypes

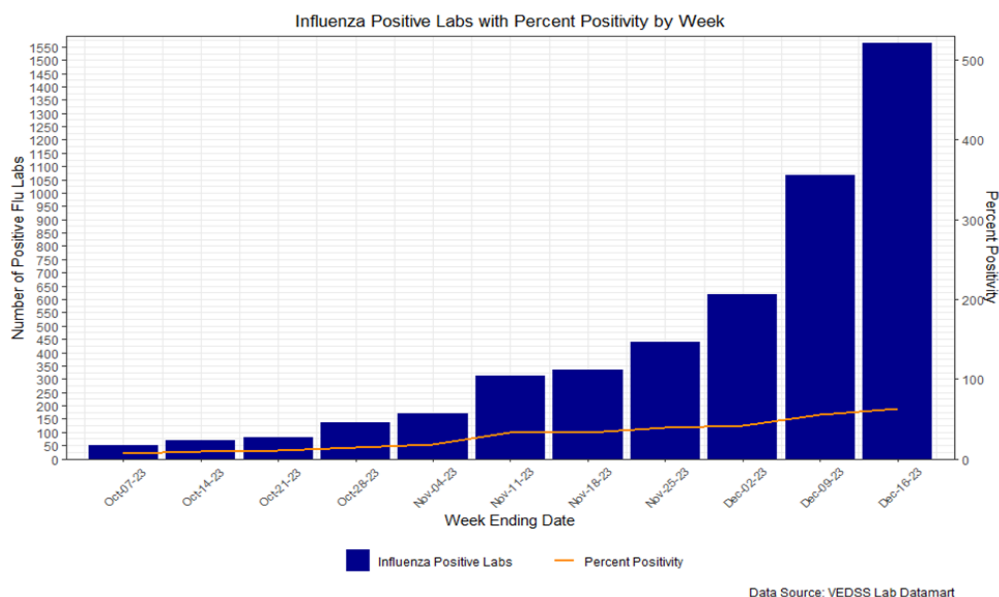
Flu Subtypes & Lineages	Reporting Week	Cumulative
	N = 1565 [†]	N = 4838 [†]
A (H1)	90 (5.8%)	310 (6.4%)
A (H3)	6 (0.4%)	35 (0.7%)
A (Unk)	1,324 (85%)	4,052 (84%)
B (Unk)	145 (9.3%)	441 (9.1%)
[†] n (%)		

The Table 2 above shows that since the start of the 2023-24 flu season, VDH received a total of 4,838 influenza positive labs. 32% of them were received during this reporting period. A total of

35 Flu A (H3), 310 Flu A (H1), and 441 Flu B positive labs were reported this flu season. A total of 4,052 Flu A labs without a subtyping have been reported either because a subtyping was not performed or there wasn't enough specimen to perform the subtyping.

Influenza positive labs with percent positivity by week

During the week of December 10 - December 16, 2023, the percent positivity (PP) for influenza was 64%¹.



¹Influenza negative labs are not reportable in Virginia. The PP reported here is based on the labs that were reported to VDH.

3.2 Lab Confirmed Influenza by Region

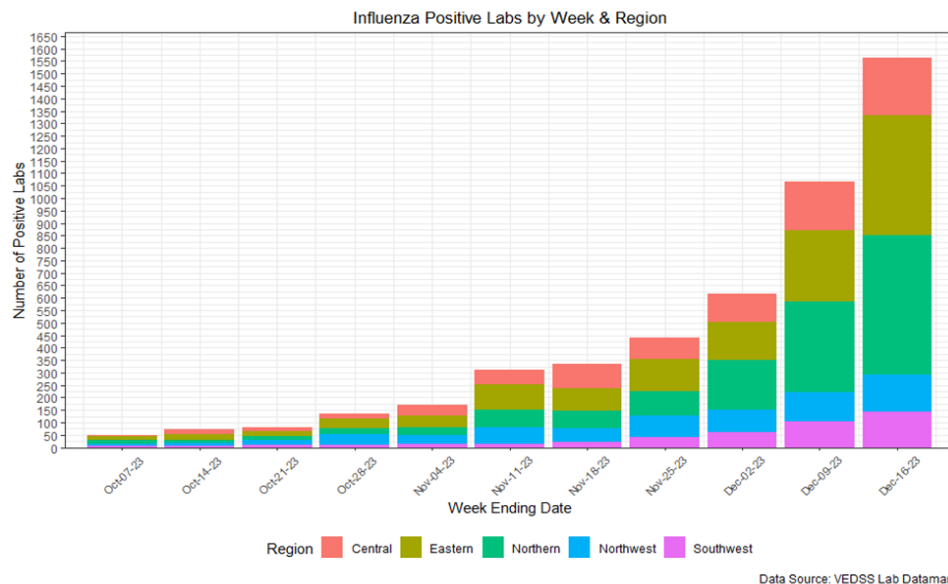


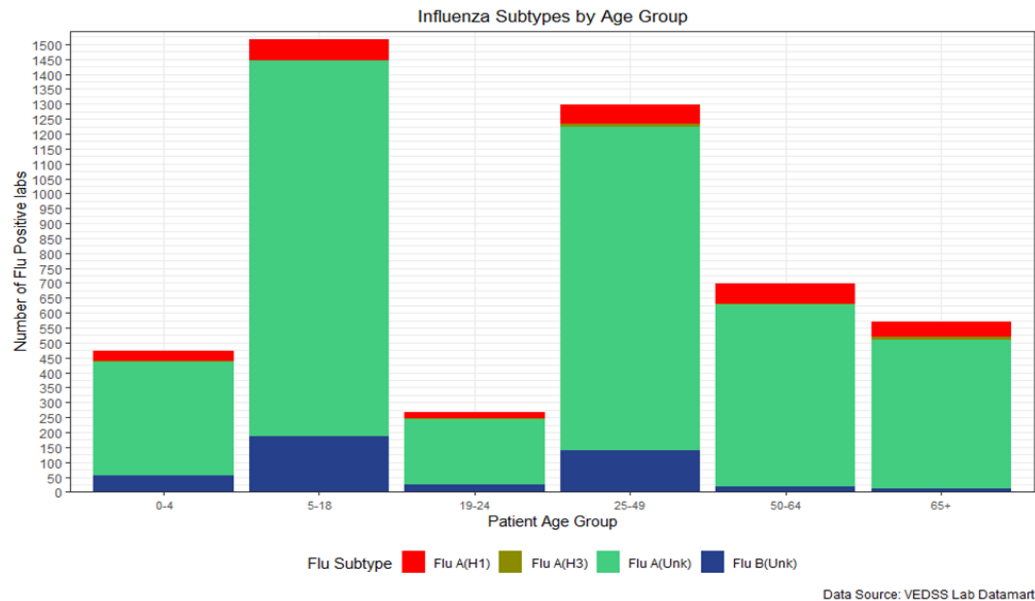
Table 3: Number of Influenza Positive Lab Reports by Region, December 10 - December 16, 2023

Health Regions	Reporting Week	Cumulative
	N = 1565 [†]	N = 4838 [†]
Central	234 (15%)	884 (18%)
Eastern	480 (31%)	1,383 (29%)
Northern	558 (36%)	1,459 (30%)
Northwest	150 (9.6%)	681 (14%)
Southwest	143 (9.1%)	431 (8.9%)
[†] n (%)		

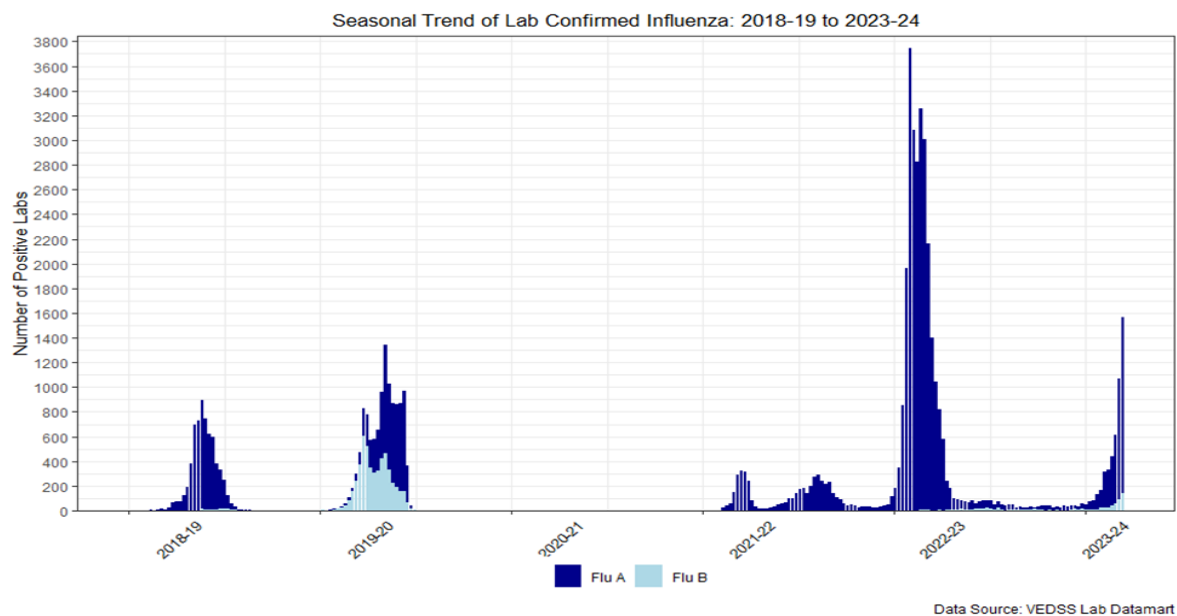
The Table 3 above shows that we received a total of 4,838 influenza positive labs from all 5 [health planning regions](#) of Virginia during this flu season. Most of the influenza positive labs (3,726; 77%) were reported from the Eastern, Northern and Central regions in Virginia.

3.3 Demographic Distribution of Influenza Positive Labs

Influenza positive labs with subtypes by age group, October 2023-December 2023



3.4 Seasonal Trend of Lab Confirmed Influenza in Virginia



Methodology

I. Syndromic Surveillance Methodology

VDH analyzes chief complaints and discharge diagnoses of ED and urgent care visits to identify and monitor issues of public health concern. The chief complaint is a free-text field capturing the patient's primary reason for seeking medical care. The discharge diagnosis is a coded field that uses standardized values outlined by the International Classification of Diseases (ICD) 10th Revision and SNOMED Clinical Terms (CT) code sets. Data in this report includes Virginia residents and out of state residents who visit facilities that send data to VDH. Readers are strongly encouraged to review [syndromic surveillance data limitations](#) when interpreting this report.

Data alerts (shown by yellow and red dots in graphs) indicate the number of ED and urgent care visits for that week was higher than the number of visits expected to occur compared to a baseline from the previous weeks (**red alert** = p-value <0.01, **yellow warning** = p-value <0.05).

Weekly visits with a zero to four percent change ($0 \pm 4\%$) compared to the previous week are defined as **stable**.

II. Outbreak Surveillance Methodology

When a Local Health Department (LHD) is notified of an outbreak of any disease, the outbreak is entered into the Virginia Outbreak Surveillance System (VOSS). As the outbreak investigation continues, users update and add data to the outbreak record. Outbreaks are categorized by syndrome: Respiratory, Dermatological, Gastrointestinal, Sepsis, and Other. Respiratory syndrome outbreak data is pulled for this report.

The Earliest Outbreak Report Date (displayed as Date Reported) is the earliest date from among the following: 1) the date the local health department was notified of the outbreak, 2) the date VDH central office staff was notified of the outbreak, 3) the date the outbreak investigation began, or 4) the date the outbreak record was created in the Virginia Outbreak Surveillance System.

III. Laboratory Surveillance Methodology

Influenza positive labs are reported by laboratories and the providers via Electronic Lab Report (ELR) or fax. ELR submissions go directly in the Virginia Electronic Disease Surveillance System (VEDSS) and the faxed influenza positive labs (if confirmed by culture, antigen detection by direct fluorescent antigen (DFA), or nucleic acid detection) are entered in VEDSS manually. R version 4.1.1 was used to run this report. Flu+SARS CoV-2 multiplex tests are not included as of this report but will be added in the future reports.

Case Definitions

I. Syndromic Surveillance Definitions

Diagnosed Acute Respiratory Illness: ED and urgent care visits with any acute respiratory diagnosis, including specific respiratory infections (e.g., influenza, RSV, or coronavirus) and general respiratory illness diagnoses, such as bronchitis, upper respiratory infection, or pneumonia.

Influenza-like Illness excluding diagnosed COVID-19: ED and urgent care visits with a chief complaint of 'flu' or fever + sore throat/cough. Visits with diagnosed COVID-19 are excluded.

Diagnosed COVID-19: ED and urgent care visits that include COVID-19 in the discharge diagnosis.

Diagnosed Respiratory Syncytial Virus (RSV): ED and urgent care visits that include RSV in the discharge diagnosis.

Note that data do not represent confirmed cases of these conditions, but they can assist with understanding the burden on healthcare systems and the community.

II. Outbreak Surveillance Definitions

Confirmed Outbreak: An outbreak with 2 or more positive confirmatory lab results² without a more likely source of exposure.

Suspected Outbreak: An outbreak with either 1 or more confirmatory and 1 or more non-confirmatory positive lab results² or case that meets the epidemiological case definition without a more likely source of exposure.

Unknown Etiologic Agent: An outbreak without a clear distinction or enough supportive laboratory confirmation results to declare a true etiologic agent. In this report, outbreaks with an unknown agent contain respiratory disease symptoms (cough, sneeze, headache, etc.) but do not have confirmatory lab information that proves a specific respiratory etiologic agent (negative flu panel or SARS-CoV-2 tests).

III. Laboratory Surveillance Definitions

Influenza Positive Lab Reports: Influenza positive lab reports include lab reports that were confirmed by PCR or viral culture or antigen detection by DFA to be positive for influenza virus. This does not include 'Flu Rapid Antigen' tests as those are not reportable in Virginia. 'Undetermined' test results are not included in this report.

² Dependent on the etiologic agent in question